elegantly constructed iron presses, which have, from time to time, appeared under the name of the Stanhope, the Clymer, and the Columbian, a specimen of each of these may be seen in our office. As a guide to our printing friends in the country, we would observe that for the larger we prefer the Columbian, and for the smaller a very neat press made by Mr Joseph Aldritt, jun. of this city, which takes its power from two little joints that act upon the platten, something very much in the manner of the joints of the elbow, which bring upon the type a fair, equal, and good impression.

In place of the large balls made of sheep-skin, stuffed with wool, and by which there was a vast waste of ink and labour, we have now the neatly formed roller, composed of the proper proportions of glue and treacle,* suited to the various seasons of the year, and which takes up the ink and gives it off again on the type, in a way much superior to the former method. As many of our readers, however, may never have had the opportunity of examining a printing office, we shall endeavour to make this portion of the process intelligible to them.

The *form*, that is the types arranged within the iron frame, called the *chase*, which we have described, being placed upon the table, or level surface of the press, is now *made ready* by one of the pressmen. This is rather a particular department of the business; as in small works considerable care is required to make *good register*, or, in other words, to make the various corresponding pages fall on the back of each other, and, unless this were done, the printing would have a very bad appearance; which will account for the same charge being made for working off ten copies of any publication that would be made for two hundred and fifty, the same trouble being requisite. This part of the work being at length properly adjusted, one of the pressmen, after passing his roller several times over a board which lies before him covered with ink (which we may observe, by the way, is composed of lamp-black and oil), then rolls it backward and forward across the form of type. His companion, in the mean time, has taken a sheet from the heap of paper before him, which had been previously damped, and laid it on the tympan, which he turns down on the type, and rolling it in under the point of pressure by the rounce-handle, pulls the bar, and thus makes the impression. In the hands of a person unacquainted with the art, a considerable time would be required for each sheet, while an experienced pressman will frequently lay on, print, and take off eight sheets in a minute; and this with such exactness as never to cause the sheet to deviate in the least degree from the spot marked out by two little points which pierce the paper on printing the one side, and which form the guide for printing the other. The rapidity with which these operations are performed appears extraordinary to those unaccustomed to the art, but when we come to consider the performance of the machine, the effects of manual labour, extraordinary as they may have appeared, will be thrown altogether into the shade.

The required number of sheets, on being worked off, are handed to the warehouseman, who hangs them up to dry, who in a day or two having placed each sheet separately between glazed boards, subjects the entire to the pressure of an Hydrostatic press of three hundred tons power.—This not only takes off the indention caused by the types on the paper, but gives it a fine smooth surface, which very much improves the appearance of the work. This last operation, however, is confined to the finer descriptions of book-work: with such a publication as the Penny Journal, or common school books, it would occasion too much loss of time and trouble to admit of its being generally done.

* Rollers are a composition of glue and treacle, which when boiled into a liquid state are cast in a mould, round a cone of wood, and when cold, on being extracted from the mould, are found sufficiently firm and consistent to answer the required purpose.

In our observations relative to the operation of printing, we have heretofore been speaking of the common press. We shall now proceed to the

PRINTING MACHINE.

We would here request the reader to refer for a moment to the engraving of our machine, which we have given in our first page. He will at once perceive that its operations are very different from those of the common press. In the latter he will notice that the surface of the platten, which gives the impression to the type, is a plate placed in a horizontal position, and that the impression is produced by a screw and levers acting directly and at the same moment on the entire surface of the form of types to be printed; while in the machine the impression is taken off by rollers, under which the types are made to pass on an iron or steel table, and which works from one end of the machine to the other. He will also notice that while in the common press only one side of the sheet is printed, both sides are worked off during the operation by the machine. To explain this more fully we again refer to the engraving. The boy, A, is seen placing a sheet of white paper on a number of tapes, which pass round cylinder B, and which latter, during each evolution, carries the sheet with it, just in time to meet the form of types which are placed on table C, and which give off an impression as they pass under the cylinder. By a very simple arrangement of the tapes round the small roller or drums, D and E, the sheet, now half printed, is conducted to cylinder F, which, as it revolves, meets the other form of types, and receiving the impression on the other side, is now thrown out, completed, to the boy G, who lays it on the table at the side of the machine. The entire operation is so extremely simple, that a few moments examination of the engraving, with the explanation, will make the process perfectly intelligible. The inking of the types is performed by the small rollers, H, H, and the assistance of what is called the Doctor: by a small lever and pinion the roller is raised up to where a large iron roller (the Doctor) is revolving in a small trough filled with ink, and from which, at every evolution, it takes a little, which it again lays down on the end of the table, which carries the types under the cylinders, and which passing under the rollers, H, H, imparts the necessary quantity to them, which they again give off to the types during the motion backwards and forwards under them.

Having thus given a familiar, though brief, description of the process of printing by the machine, we shall now mention a few of the advantages which it possesses over the common printing press. The greatest of these we conceive to be the time saved in the operation, and the large size of the sheet which it will print.

The number of impressions produced per hour on the Columbian, Stanhope, or improved press, of the generality of book-work, is two hundred and fifty per hour, by the joint exertions of two men—the one inking the types with the roller, the other laying on the sheet, and taking off the impression—the machine, with two boys, one to p in the sheets, and the other to take them out, would pr duce seven hundred and fifty sheets printed on both sid —that is fifteen hundred impressions; and when two are worked together, as in the case of the Penny Journal, three thousand impressions in the hour. This will at once shew the advantage of the machine in works requiring expedition, or where a large number are to be worked off; as it will appear that while one thousand perfect copies is all that could be produced by a common press, with two men, in one day, the machine will produce fifteen thousand copies in the same time.

With regard to the saving of time, however, when stereotype plates are used, the advantage is greatly lessened, as the time it takes to make ready a stereotype form is very considerable. The machine can only be applied with advantage, therefore, in long numbers, as from the time it takes to make ready forms, even of moveable type, it would not be worth while printing any number under two thousand on it.